

Claims

- [c1] 1. An enhanced reading device for reading documents, comprising: a document support tray having a size suitable for supporting printed material; to a video camera, positioned above the document support tray and selectively movable such that video images of selectable portions of documents resting on the document support tray can be input by the video camera; means that output video data from the video camera.
- [c2] 2. A device, as in claim 1, further comprising: a lateral camera support assembly, comprising: longitudinal motion control means for controlling longitudinal motion of the video camera above the document support tray; lateral motion control means for controlling lateral motion of the video camera above the document support tray; whereby the location of the video camera can be selectively located above the document support tray.
- [c3] 3. A device, as in claim 2, wherein the lateral motion control means further comprises: a lateral camera assembly support having means to support the video camera, and means to move the video camera laterally such that the video camera, when moving laterally across the

document, can input video images of at least a portion of a line of text in the document; whereby text from a document can be selectively input to the video camera.

- [c4] 4. A device, as in claim 3, wherein the longitudinal motion control means further comprises: means to longitudinally move the lateral camera assembly support such that the video camera can be moved from one line of text to another; whereby the video camera can control the movement from one line to another for input to the video camera.
- [c5] 5. A device, as in claim 4, wherein the longitudinal motion control means and a lateral motion control means are independently controllable.
- [c6] 6. A device, as in claim 5, further comprising: a transmission gear drive, the transmission gear drive having first drive means to control longitudinal movement of the video camera, and second drive means to control lateral movement of the video camera; a transmission control knob; a rotatable and longitudinally slidable drive shaft attached at its distal end to the transmission gear drive and at its proximal end to the control knob, such that in a first position the transmission gear drive provides longitudinal motion control to the video camera, and when in a second position the transmission gear

drive provides lateral motion control to the video camera; whereby a single control knob can be used to control both lateral and longitudinal motion of the video camera.

[c7] 7. A device, as in claim 4, wherein the longitudinal motion control means further comprises: a longitudinal control electronic switch for controlling longitudinal motion of the lateral camera assembly support; and a longitudinal motor drive to longitudinally move the lateral camera assembly support, under control of the electronic switch, such that the video camera can be moved from one line of text to another; whereby longitudinal motion of the video camera can be electronically controlled.

[c8] 8. A device, as in claim 7, further comprising: a lateral control electronic switch for controlling lateral motion of the camera in the lateral camera assembly support; and a lateral motor drive to laterally move the camera in the lateral camera assembly support, under control of the electronic switch, such that the video camera can be moved from one line of text to another; whereby lateral motion of the video camera can be electronically controlled.

[c9] 9. A device, as in claim 3, further comprising: a lateral control electronic switch for controlling lateral motion of

the camera in the lateral camera assembly support; and a lateral motor drive to laterally move the camera in the lateral camera assembly support, under control of the electronic switch, such that the video camera can be moved from one line of text to another; whereby lateral motion of the video camera can be electronically controlled.

[c10] 10. A device, as in claim 8, further comprising: a transparent panel sized such that it can be removably placed over at least a portion of the document support tray, the transparent panel having sufficient weight to press a document flat when the transparent panel is laid on top of the document, the transparent panel having sufficient transparencies such that the camera can produce an image of the document when it is covered by the transparent panel.

[c11] 11. A device, as in claim 9, further comprising: a transparent panel sized such that it can be removably placed over at least a portion of the document support tray, the transparent panel having sufficient weight to press a document flat when the transparent panel is laid on top of the document, the transparent panel having sufficient transparencies such that the camera can produce an image of the document when it is covered by the transparent panel.

- [c12] 12. A device, as in claim 6, further comprising: a transparent panel sized such that it can be removably placed over at least a portion of the document support tray, the transparent panel having sufficient weight to press a document flat when the transparent panel is laid on top of the document, the transparent panel having sufficient transparencies such that the camera can produce an image of the document when it is covered by the transparent panel.
- [c13] 13. A device, as in claim 1, wherein the camera further comprises an auto focus function.
- [c14] 14. A device, as in claim 3, wherein the camera further comprises an auto focus function.
- [c15] 15. A device, as in claim 6, wherein the camera further comprises an auto focus function.
- [c16] 16. A device, as in claim 10, wherein the camera further comprises an auto focus function.
- [c17] 17. A device, as in claim 3, further comprising: a lift mechanism positioned under the document support tray, the lift mechanism further having means to raise or lower the document support tray such that the document on the tray is moved closer or farther from the camera.

[c18] 18. A method of displaying printed documents with an enhanced reading device, including the steps of: placing a printed document where it can be read by a moving camera; moving the camera longitudinally and laterally above the document such that selectable portions of the document are input to the camera; and outputting a video image of the selected portions of the document from the camera to a monitor device which displays an enlarged image of the photographed text.

[c19] 19. A method, as in claim 18, including the additional step of providing a method of automatically focusing the camera.

[c20] 20. A method, as in claim 18, including the additional steps of providing a means to move the printed document vertically to vary the distance between the document and the camera.